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History on Mona Island

Long-term Human and Landscape Dynamics of an 'Uninhabited' Island

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Abstract

The history of Mona Island and her transitory and permanent communities provides an interesting perspective on the role this small island has played over the long-term in spheres of maritime interaction in the Caribbean and further afield. In particular, we examine the role that the extraordinary cave systems have played in attracting people to the island and into the subterranean realm within. Through a recent study of the extant historical sources and archaeological evidence for past human activity on the island, we trace this historical landscape and seascape in order to review the importance of Mona in wider regional dynamics through time.

Keywords

Mona Passage – Caribbean history – island archaeology – human cave use

Introduction

Certain themes repeat themselves again and again in the literature on the human history of small islands worldwide. These include their role as places with unique or distinct natural resources (Fitzpatrick & Keegan 2007; Jones & Stedman 2007); their vulnerability to human impact (Kirch 2000, 2007); the transitory or demographically selective nature of their human populations;

their non-neutrality; their character as culturally extraordinary realms; and their dynamics across a spectrum of isolation and connectivity (Boomert & Bright 2007; Broodbank 2000; Fitzpatrick & Anderson 2008). Mona Island in the Caribbean provides a long-term illustration of these preoccupations. The purpose of this article is to review these themes across the island's 5000 year human history, from initial colonization to the present day, contextualizing pre- and post-Columbian indigenous cave use within a regional perspective, in light of a new archaeological project focused on the region.

Some of the most challenging questions in pre-Columbian Caribbean archaeology have been played out in the geopolitical arena of the Mona Passage. The region was conceived as a boundary (the "Ortoiroid-Casimiroid frontier," Rouse 1992:67, 90) between what has traditionally been seen as two distinct human colonizations of the archipelago, much later as a block to the Ceramic Age expansion into the western Caribbean (the "long pause," Keegan 2000; 2010), after which impasse, a conduit for the rapid spread of agriculturalists into Hispaniola, the Bahamas, and Jamaica; and in the last pre-Columbian period, a crucible which gave rise to complex societies in the region (the "Rousian" narrative, Rouse 1992). Subsequent scholarship, especially by Caribbean colleagues, has deconstructed the epistemological, theoretical, and methodological base of this narrative, in favor of anthropologically-informed theories based on alternative datasets (i.e. not solely pottery-based) with hypotheses suggesting diverse migrations from different mainland and island areas, and multiple creolizing episodes.¹

The Mona Passage continued to play a significant historical role in European voyaging and imperial expansion in the early colonial period, and was the main route into the Americas and stage for trans-Atlantic confrontations throughout the seventeenth and eighteenth centuries. In the nineteenth century, exploitation of Mona Island's phosphorite reserves pulled the region into the purview of the industrial revolution, as happened with countless other "remote" small islands globally (Cushman 2013). The Mona Passage today is just as politically charged, being an active global route for the illicit economy in terms of people and drugs trafficking.²

In this paper we research and synthesize archival, historical and archaeological evidence to review the role of Mona Island within Mona Passage long-

1 Chanlatte Baik 1983, 2003; Curet 2005; Pagán Jiménez 2011; Rodríguez Ramos 2010; Rodríguez Ramos et al. 2008; Ulloa Hung & Valcárcel Rojas 2002; Veloz Maggiolo 2001.

2 <http://www.elnuevodia.com/detienen70migranteshaitianosenislademona-1889482.html> (accessed January 2015).

term cultural and economic dynamics, especially in terms of the affordances of the physical geography to human populations, Mona's relation to surrounding landmasses, and the economic and symbolic opportunities provided by Mona's extraordinary cave systems, which we argue were a dynamic attractor for multiple groups, communities, and individuals over 5000 years. Establishing a long-term historical baseline for this island is an essential first step as development of the island by the Puerto Rico government is currently planned. In terms of wider implications for understanding Caribbean history, communities on Mona Island bring into focus the intersections between humans, the physical landscape, and politics through their negotiation of autonomy, dependency, vulnerability, and identity. The changing spheres and edges of pre-Columbian networks, the mosaic of island colonies, and today's Caribbean nations are a result of exploring what Hauser and Armstrong term the "geographies of possibility" of the landscape-seascape of which Mona is a part (Hauser & Armstrong 2012; Hicks & McAtackney 2007).

Landscapes, Seascapes, and Cavescares of Mona

Geographically and culturally Mona Island is part of an archipelagic seascape which forms a single structural unit with its neighbors, the Dominican Republic to the west, and Puerto Rico to the east. Mona is located in the middle of a fast-flowing, deep, and treacherous 120 kilometer wide marine conduit, the Mona Passage, through which the Caribbean Sea and the Atlantic Ocean meet, and which encompasses a number of additional small islands including its tiny sibling Monito, and the islands of Saona, Catalinita, and Desecheo (Figure 1). Throughout pre-Columbian, colonial, and contemporary times this entire region forms a distinctive "marine theatre" (Broodbank 2013), an area in which there was an interdependence and internal mobility which bound the microregion together and characterized its participation in wider Caribbean and global networks.

Mona itself, is a small 50 km² plateau, 10 km from east to west, and 7 km from north to south, roughly heart-shaped, and described aptly as a "floating fortress" (Dávila 2003) due to steep cliffs, up to 90 meters in height, that rise up around its perimeter and descend to beaches in the south and southwest. The island currently has thin, patchy soils, with 90 percent of Mona and Monito devoid of soil cover (Junta de Calidad Ambiental 1973), a xerophytic vegetation, maritime climate, and no surface freshwater sources (Figure 2). Nowadays Mona is a national park under the administration of Puerto Rico's Department of Natural and Environmental Resources (DRNA/DNER).

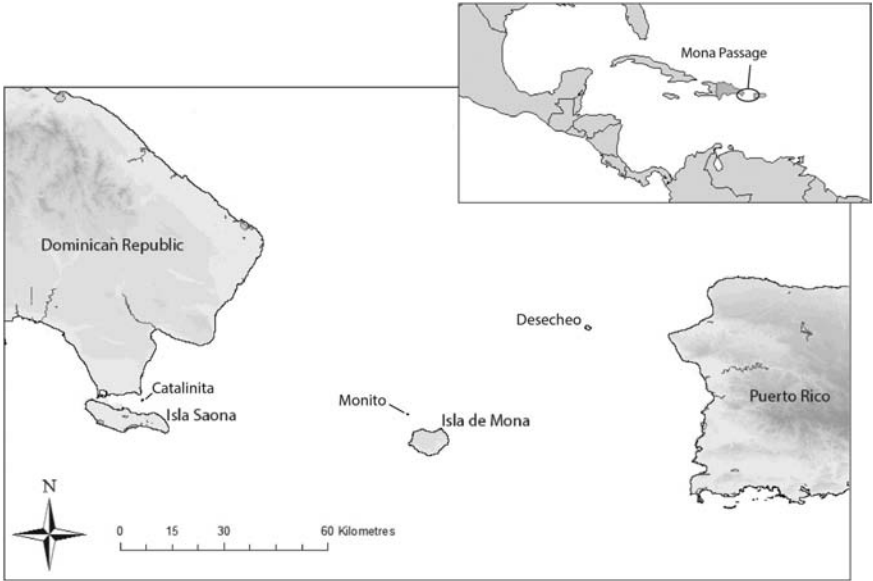


FIGURE 1 *Map of Mona Passage within Islandscape*



FIGURE 2 *Aerial view of Mona with views of the coastline in the west, the xerophytic vegetation on the tableland, and the northern cliffs and inland*

Like much of the Greater Antilles, the Yucatán, and the Bahamian archipelagos, the island has a carbonate geology, subject to dissolution by rain and sea water, which has created a distinctive karst topography, sculpting negative spaces of various magnitudes across its surface and interiors (Frank et al.

1998). These include soil filled depressions hundreds of meters across, denuded, pitted, and honeycombed surfaces which are difficult to traverse, and most impressively and relevant to this paper, subterranean cave systems, making it “one of the most cavernous localities on Earth” (Frank et al. 1998:82). The speleogenesis, economic, cultural, and biological resources of these caves have been the object of study since the nineteenth century, motivated largely by their extensive reserves of phosphorite, a mineral probably derived from fossil guano, and mined for industrial and agricultural purposes (Cardona Bonet 1985; Wadsworth 1973). The carbonate tableland or *meseta* came into existence through a combination of sea-level change and tectonic uplift. Its rocks consist of two units, a dolomite core, overlain by a limestone cap (Briggs 1974; Frank et al. 1998; Kaye 1959). It is this limestone which contains the majority of the island’s estimated 200+ caves, most of which trend around the perimeter of the island (Figure 3). This distinctive cave type formed at the flank of the landmass (i.e., the coastal margin) by dissolution at the distal margin of the freshwater lens, hence the name flank margin cave (Mylroie 2012). Flank margin caves were formed around two million years ago by the erosive action at the freshwater lens and saltwater interface (Frank et al. 1998:76; Kambesis 2011; Lace 2012). The caves are scaled in terms of their size and complexity, typically presenting a series of oval rooms, horizontally extensive—for example Cueva Lirio has been surveyed for 19 kilometers—and vertically limited with their chambers connecting in unpredictable patterns, with maze-like areas (Mylroie 2012). Rainwater percolating through the caves has festooned their interiors with impressive speleothem features such as stalagmites, stalactites, and flowstone formations (Figure 4).

These caves, after they were carved out and became dry, were colonized by bats, probably a fish-eating species such as *Noctilius* (Kaye 1959),³ large colonies of which deposited guano over millennia throughout all areas of the cave systems. The existence of a nonphosphatic dripstone crust a few centimeters thick covering the floor deposits in unmined areas of the caves, probably indicates the departure of the bats, a climatic shift, and provides evidence for the antiquity of the estimated Holocene and pre-Holocene guano deposits (Briggs 1974:82). The resultant leached out, fossil deposits have recombined in various ways with local carbonate minerals to form a light tan, crumbly, phosphorite, very different from fresh guano which is black and sticky.

3 The lack of clear fossil evidence has prompted discussions in the literature about the bat or bird origin of the guano, which tend in favor of bats as the caves are dark and the guano deposits are equally distributed throughout (Kaye 1959).



FIGURE 3 *Top: View of Mona's south coast from the sea. Note the characteristic series of flank margin caves in the contact between the limestone and dolomite. Bottom: view to sea from a cave entrance.*



FIGURE 4 *Flowstone formations. Rolf Vieten, doctoral student, University of Puerto Rico-Mayagüez, member of the project team.*

The surface properties of some of the cave chambers within the extensive cave systems is very distinctive. Many of the cave walls and ceilings are covered in soft, off-white, orange, or dark brown frosting, a sort of “dust coat” (Kaye 1959). This is an unusual characteristic, different from the hard surfaces of most karstic caves in the Caribbean region (for rare exceptions see DuVall 2010; Gutiérrez Calvache 2013). The singular properties of these surfaces have been recognized for decades, and known locally as “sudor de roca,” or rock sweat (Núñez Zuloaga 1879/1973). How such corrosion residues formed, whether due to chemical, atmospheric or biological processes is currently unknown; however, these crusts, along with various earth minerals, pigments, clays, and water, were key attractors of humans into the caves and to the island, exploited throughout Mona’s human history (Figure 5).

Research History on Mona

Nineteenth century references to Mona’s ancient human past appear in the context of growing international interest in the island’s guano deposits, sparking antiquarian interest. Inspector of mines, Angel Vasconi, in his prolific reports on mining in Puerto Rico, specifically observes that caves are a source of



FIGURE 5 *Corrosion residues on the cave walls. Note the finger raking through the soft deposits, possibly associated with pre-Columbian extractive activities.*

information on what he calls quaternary man (“hombre cuartenario,” Vasconi y Vasconi 1879/1880, *AHN ULTRAMAR*, 347, Exp. 7, p. 44). In addition to geological specimens from the caves, indigenous artefacts were collected, most notably by Canadian mine director John G. Miller, whose curiosity cabinet contained “Indian tools and human bones”⁴ found in the caves (Cardona Bonet 1985:69; Brusi y Font 1884/1997:18).⁵ Besides antiquarian interest in portable artefacts, in an 1879 memoir, Spanish naval officer Núñez Zuloaga described three ditches at the foot of the highest cliffs behind Sardinera filled with human bones which he and his companions gathered up, and left under a cross (Núñez Zuloaga 1879/1973:49). Rather than being the remains of unfortunate treasure hunters or pirates, as Núñez notes, it is possible that he came across burials related to the nearby indigenous settlement at Sardinera (Rouse 1952).

In 1883 exploration of the island’s interior led to the discovery of an indigenous plaza at El Corral, although at this time it was not recognized as such but described as a rectangular property surrounded by stones which may have

4 “herramientas indias y algunos huesos humanos,” Brusi y Font 1884:18.

5 Unfortunately this collection and its owner made a perilous journey across the Mona Passage and sank in 1885 (Wadsworth 1973).

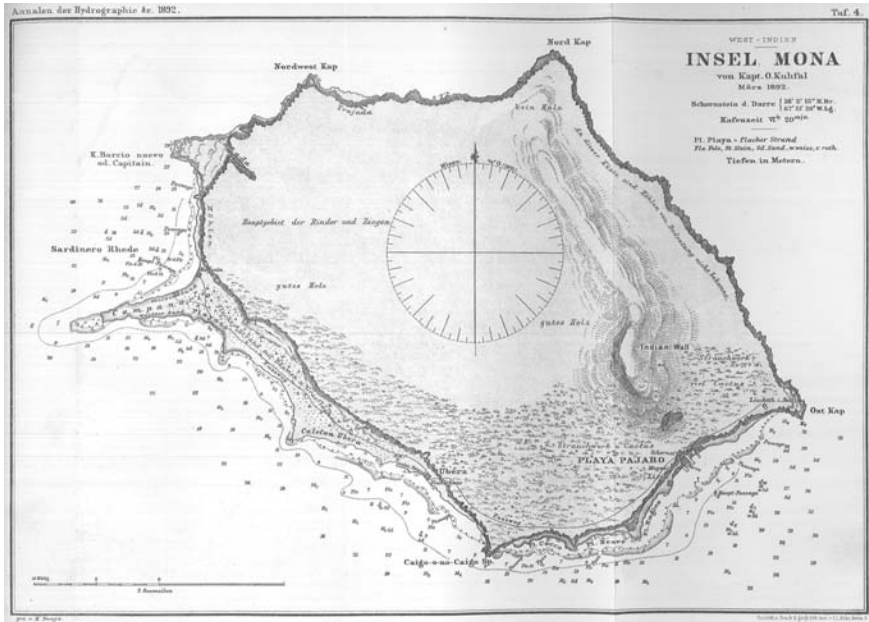


FIGURE 6 Map of Mona by O. Kuhfal, 1892. Courtesy of Cambridge University library.

been the site of a house (Vasconi y Vasconi, cit. Dávila 2003:198). A map, created around this time by Captain Kuhfal (1892) as part of an 1890 German mining venture, and reproduced in an article by Theodore Hübener (1898), is one of the earliest to detail the island's interior (Figure 6). Curiously, this map depicts a feature labelled “Indian wall” in the general location of the plaza at El Corral. Although the name is probably intended to mark a series of shallow sinkholes, it demonstrates antiquarian consciousness of an indigenous past, and in later maps is marked as Los Corrales de los Indios.

The same German engineer Theodore Hübener explored caves on Mona, describing a soot-blackened chamber in Cueva Negra with scratched drawings of ships and gallows complete with a hanged corpse (Hübener 1898:369). Given Hübener's fascination with the buccaneering history of Mona, it is unsurprising that he attributes these drawings to pirates (Figure 7). Although Kaye, visiting the same chamber sixty years later, recounted that “the ceilings and walls are scored by Indian finger designs made simply by running fingers over the dust-coated wall” (Kaye 1959). And indeed the surfaces of this cave are a complex palimpsest of mark-making episodes. A deposit of bird bones (Audobon's Shearwater), he found associated with indigenous ceramics and historic material was later radiocarbon dated to the fifteenth century (Frank 1998a; Kaye



FIGURE 7 *Skull and crossbones incised into the corrosion deposits. Designs like these captured Hübener's and other's imaginations.*

1959). Both Pedro Santana and Ovidio Dávila later corroborated these observations and described the extensive indigenous modifications of the cave walls in Negra (Dávila 2003; Santana 1973).

The first explicitly archaeological research was undertaken by Yale archaeologist Irving Rouse (1952) as part of an extensive survey of Puerto Rico to build a cultural chronology for the Caribbean. Rouse described a large settlement at Sardinera with midden mounds extending over 2 km² and up to 70 cm deep (Rouse 1952:366). Two small units (4 m²) excavated near the entrance of Cueva Negra (referred to as Cueva del Muerto) confirmed the late date of the pre-Columbian settlement, its persistence into the colonial era, and identity as the village described in colonial documents (Rouse 1952). Although Rouse's sojourn on Mona was brief, and curiously he did not remark upon the mark-making in the caves, the archaeology of the Mona Passage area, including Mona, was key in Rouse's conception of indigenous cultural development. He came to interpret the archaeological cultures across this interisland region as the apogee of complexity in the West Indies (Rouse 1985). This is due to the similarities in material culture, such as elaborate pottery and stone artefacts, monumental architecture, and ceremonial complexes, shared by pre-Columbian cultures on either side of the Mona Passage between eastern Hispaniola and the Puerto Rican mainland.

Mona was subject to a series of archaeological visits and small-scale test-pitting campaigns by various researchers throughout the early 1970s, within the context of plans to turn Mona into a superport for the storage of petroleum products and other such projects (Crusoe & Deutschle 1974; Santana 1973; Dávila 2003). It was Pedro Santana, a geographer from the University of Puerto Rico, whose interest in the archaeology of Mona led not only to the discovery a second ceremonial plaza on the island, Los Cerezos, but also rock art in two caves near Sardinera and Pajaro, as well as corroboration of finger designs in the soft deposits of the walls of Cueva Negra attributing, like Kaye, these “grabados digitales” a pre-Columbian origin (Santana 1973). Santana judged the latter to be the most significant pre-Columbian legacy on the island, likening the technique to finger fluting in Paleolithic contexts in Europe (Santana 1973:2–3).⁶

The most long-term and dedicated archaeological investigation of Mona to date has been by Ovidio Dávila whose doctoral dissertation reported in detail the results of nine months of fieldwork over a period of ten years between 1981 and 1991 (Dávila 1998; 2003). Dávila carried out documentation in seven of Mona’s caves, two of which were previously unreported and four containing rock art, posited the existence of a third plaza, and excavated at three locations, including the earliest dated context on the island (Cueva de los Caracoles), the Sardinera settlement, and a cave with evidence for pre-Columbian occupation (Cueva de Geña). Dávila’s work established a 5000 year human occupation history on Mona, confirming this small island as a key location in the first concerted phase of human expansion in the Antilles, but also one with the longest records of long-term human activity in the Greater Antilles, lasting a century after European colonization.

Archaeological research to date, although establishing Mona as archaeologically significant, especially in terms of its density of rock-art, or mark-making of various characteristics and purposes,⁷ has provided a partial culture history of the island’s indigenous past. This history, in accordance with Rouse’s observation on the confluence of sea passages with “ceramic areas” (Rouse 1951), has

6 “Lo que le da verdadera importancia a este descubrimiento es la técnica empleada por los indígenas al grabar la mayor parte de las figuras, y que la misma, hasta donde sabemos no tiene ningún antecedente en esta parte del mundo. En efecto, muchas de las figuras están grabadas con los dedos sobre la superficie blanda y saturada de humedad de los techos y paredes de la cueva. Vale la pena destacar que esta técnica es la misma utilizada en ciertos grabados rupestres localizados en unas cavernas de Francia y España, entre las que se encuentra la mundialmente famosa Cueva de Altamira” (1973:2–3).

7 Lace 2012; Roe 2009; Samson et al. 2013; Samson et al. 2015; Samson, Cooper & Nieves forthcoming.

been largely concerned with Mona's oscillating position with respect to either one of its larger island neighbors, Puerto Rico, and the Dominican Republic/Republic of Haiti. Its archaeology has been used as a barometer to test the weather of the cultural connections across the Mona Passage. Rather than seeing the Mona Passage as a simple gateway, whose sluice goes open and shut, contexts such as Mona offer opportunities to understand the dynamics of discursively important Caribbean sea passages, small islands, and the changing agencies of their human inhabitants.

Early Human History

Mona's human history begins as early as 2800 BC, during a phase of expansion in the Caribbean archipelago. Despite its small size and proximity to larger and more ecologically diverse landmasses, Mona's caves were one of the unique resources which made it a key destination for the earliest inhabitants. Interestingly, no prehistoric evidence has been reported for adjacent Monito, which may be due to the difficulties in mooring and a lower density of cave development, or the ephemerality of activities carried out there. Excavations in Cueva de los Caracoles, an inaccessible cave location high in the sea cliffs on the west coast of the island, demonstrate this. Recovery of an assemblage of bodily adornments, human remains, food refuse of shellfish and island fauna, and tools for woodworking and plant processing span over a millennium of cave use (Dávila 2003). Although undated, petroglyphs at the entrance of Cueva de las Caritas, less than 200 m away, are ascribed to this earliest period of the history of the island. The predominantly face and eye motifs pecked into the speleothems of the latter cave share striking similarities with other early sites, such as Cueva de Berna, on the western side of the Mona Passage in the Dominican Republic (López Belando 2003; Veloz Maggiolo et al. 1977). The contemporaneity of both sites, and the similarities in their material assemblages, activities, and iconography indicate shared cultural traditions, subsistence, and ritual practices and patterns of exploitation and interaction. Whether these communities were participating in rounds of archipelagic seasonal exploitation, using Mona's caves at certain times of the year, or whether the island was a more permanent base, radiocarbon dates suggest these were not one-off visits, but an established, long-lasting use of the landscape-seascape of Mona (between ca. 2800–1000 BC).⁸

8 Dates calibrated from 4330 and 3290 BP (Dávila 2003). The available samples were limited and new radiocarbon assays are forthcoming.

A hiatus currently exists in the limited archaeological record between this earliest phase and the appearance of pottery using agriculturalists in the first millennium AD (Dávila 2003), although future research will probably reveal this gap to be spurious, especially seeing as some of the earliest Caribbean populations are known to have had a ceramic technology (Rodríguez Ramos et al. 2008). Nevertheless, it is clear from the multitude of reported ceramic styles from island sites⁹ and their traditional ancestral attributions to various regions of the Dominican Republic and Puerto Rico, and long temporal ranges (AD400–1600), that Mona was plugged into interisland networks. These populations were also attracted by the hypogean or underground spaces of the island, such as Cueva de Geña, at which pottery and stone tools were recovered. During this time however, people were extending their activities beyond the coastal regions to the whole island. This is attested by two monumental, stone-lined plazas in the interior of the tableland, similar to those in Puerto Rico and the eastern Dominican Republic (Alegría 1983; Dávila 2003; Ortega & Atilés 2003; Santana 1973). Critically, we do not know whether Mona sustained a permanent population, was periodically visited, or was incorporated into an interarchipelagic polity. Nevertheless, the presence of multiple plazas indicates the island was a location of periodic aggregation for local and overseas communities. From at least the thirteenth century AD, and probably hundreds of years earlier, a village was established below the cliffs at Playa Sardinera (Dávila 2003; Rouse 1952). Material and documental sources relate the inhabitants' experience of European domination from the end of the fifteenth century and throughout the sixteenth century.

Early Colonial Dynamics

Mobility and overseas origins are as much a factor in early colonial demographics on Mona as in pre-Columbian times, although early colonial period communities enjoyed a far lesser degree of self-determination. Europeans, enslaved Africans, and Indigenous Caribbean and South American individuals were constantly moving, and being moved, through and around the Mona Passage in the early decades of the sixteenth century (Sued Badillo 2001; Turner 1998). Certainly, *Indios* of the historic documents refers not to an unscathed indigenous entity, but a fragmented, diverse, overseas community subject to forced labor and in constant flux (Moya Pons 1992; Sued Badillo 2001; Valcárcel Rojas 2012).

9 Cuevas, Ostiones, Santa Elena, Boca Chica, Capá (Crusoe and Deutschle 1974; Dávila 2003).

Mona first appears in historic documents relating to Columbus' second voyage in 1494, when the Admiral, sailing from Hispaniola, stops on the island, native name *Amona*, for a few days to recover from sickness. For thirty years after 1508, the year of conquistador Juan Ponce de León's arrival in Puerto Rico, Mona features regularly in colonial administrative documents. First, documenting the brisk trade in supplies, predominantly cassava bread, from Mona to provision the gold-mining industry in the new Puerto Rican colony, and second with respect to foreign threats to Spanish interests on Mona (Cardona Bonet 1985; Turner 1998; Wadsworth 1973). From a community of eighty in 1511, whether this refers to heads of households or Indians of a certain status, Mona's indigenous populations exceeded one hundred people between 1517 to 1519 (Coll y Toste 1915: vol. 1, tomo 2:61; Wadsworth 1973). Population increase under Barrionuevo's administration from 1513 may have been due to his slaving activities in transporting Indios between the Antilles and South America, as well as to regular slave traders between Santo Domingo and San Germán in the first decades post conquest. Those forcibly uprooted from elsewhere and transported to Mona swelled the island's population, and were forced to meet the demands of Mona's role as the breadbasket of Puerto Rico (*granjería*, Fernández de Oviedo 1851, lib. XVI, cap. 1; Cardona Bonet 1985; Wadsworth 1973). From 1511–19 it is estimated that one hundred tons of cassava bread were exported from the island, coinciding with the peak, 1513–16, of the inter-island slave trade between Hispaniola and Puerto Rico (Cardona Bonet 1985; Turner 1998).

The rapidly creolizing community exerted considerable agency on the course of the colonial endeavor, not only in the Spanish possessions of Hispaniola and San Juan, but further afield by acting as a source of intelligence on foreign movements and policy across the Caribbean Sea (Cardona Bonet 1985). This was especially the case in the aftermath of the gold-mining era and due to the increasing loss of control over Mona by the Spanish Crown, and ambivalent character of her population. Mona was a port of call not only for Spanish ships, but to Spain's anxiety, it increasingly became an entrepôt visited by vessels bearing French, English, Dutch and other flags, who weighed anchor in the waters of the Mona Passage off Mona in particular, refurbished ships, extracted local produce, and enslaved, hosted, killed, and courted Mona inhabitants. Local inhabitants who make fleeting, antagonistic, obliging, and sometimes conspicuously absent appearances in the historic descriptions, would have played a role in brokering and manipulating deals, granting and denying intelligence and resources, and clearly established ongoing relationships with return crews to Mona. This situation is reflected in the repeated petitions to the Spanish crown by amongst others Fernández de Oviedo, De Las Casas, and the Captain of the Armada, to build defenses on Mona (Dávila 2003). In 1548,

Bishop Rodrigo de Bastidas describes the population of Mona as a few, good Christians, married and with a well-appointed church (Dávila 2003:33). Later in 1561, a member of Felipe II's court, Licenciado Echagoian, mentions the presence of fifty Indios, occasionally visited by a priest, but otherwise unsupervised by official Spanish presence (Dávila 2003:34–35). By this time there was a thriving population of European-introduced livestock and other animals on Mona including pigs, goats, cows, chickens, dogs, and cats, as well as fruits and other produce in the gardens of the inhabitants. In 1567, possibly in retaliation for providing intelligence to the Spanish, the French razed the village at Sardinera (Cardona Bonet 1985). In response, some inhabitants fled into the interior of the island (Wadsworth 1973). This is also suggested by archaeological evidence from the cave site of Cueva Campanita, interpreted as a refuge for Mona inhabitants after this event (Dávila 2003:168–69). Under the guise of defending the island's population against the continuing predations, but probably mainly due to issues of information control, the Spanish made plans to move the remaining inhabitants of Mona to join communities in the hills of western Puerto Rico (Cardona Bonet 1985). This is interesting because it shows the Spanish administration still considered the Mona inhabitants to be a discrete community of Indios, in other words a particular socioeconomic and ethnic category of colonial subject. In contrast, in 1590, Master John White, English privateer, records burning a dozen houses belonging to "Spaniards," and giving chase to the inhabitants before they escaped to the caves (White 2014:408). This is followed up by reports in 1592 of nineteen people farming on Mona, described as the family of a Portuguese sailor ("olde Portugall," Twitt 2014). Two visits by English ships in 1593 explicitly report the "Indians of Mona gave us some refreshing" (Andrews & Wright 1959:273), and describe the captain's visit to the house of an "Old Indian and his sons" (Andrews & Wright: 289). The multiple identity ascriptions may reflect on the one hand a century of transculturation so that references to "Indios" on Mona describe Indian, African, and European mestizos, of diverse origins and classes, and on the other hand the existence of multiple hybrid groups of escapees, colonial vagabonds, and Indios seeking out a precarious existence on the island. Continued attacks on the population(s) of Mona, and reports of ships continuing to use the island as a provisioning station into the seventeenth century makes it likely that any remaining inhabitants would have relocated to less accessible locations so that there are no more mentions of a population after the 1590s.

Unofficial Histories

Throughout the seventeenth to the first half of the nineteenth centuries there is some doubt as to whether Mona can be considered inhabited. The de facto abandonment of the island by the Spanish government coincided with the decline in the gold-mining industry and the official supposed removal of the last remaining Indios (Wadsworth 1973). Monito's bird and bird egg resources drew ship's crews and local fishermen to it, and the numerous references to water sources, fruit trees, and other crops obtained on Mona supports the idea that there may have been a small but persistent population, predominantly made up of privateers, fishermen, and refugees (Wadsworth 1974). In the seventeenth century the Dutch and the Danish used the Mona Passage and its islands—Saona, Mona, Monito, and Catalinita—as a base of operations (Cardona Bonet 1985; 1989). Throughout the eighteenth century ships appear to have been constantly moored around Mona and Monito, with the islands used to imprison captured crew, await victims, and take on food and water. Mona was inhabited for a couple of months by English pirates during 1756–57, and from 1795–1808 the Puerto Rican pirate Cofresí made Mona his base, building a series of houses in which women and children also lived until bombarded with canon fire by the then Spanish governor. In the eighteenth and start of nineteenth centuries Mona continued to be used as a pirate base, and also as a station for barracking enslaved Africans in ruined houses whilst waiting to be sold to sugar producing islands. That Mona may have been home to a Cimarron population, or escapees of African descent, is indicated by the logs of ships returning to Puerto Rico, such as in 1829 which detailed the capture of a black woman and six men (Cardona Bonet 1985). These expeditions were made by fishermen from the western municipalities of Puerto Rico who conducted a regular industry to and from Mona for fish, turtles, goats, pigs, wood, and phosphorite. This was a well-organized industry as can be seen from the descriptions of *rancherías* consisting of houses of eight to ten men who inhabited Mona's beaches at Uvero and Sardinera, and in a cave at Los Ingleses between April and September (Brusi y Font 1884; Núñez Zuloaga 1879/1973). The material traces of their sojourn on Mona are recorded in inscriptions and signatures on the cave walls, for example by Felipe Pabón (Figure 8). Clearly Mona's abandonment was an absence from official records, rather than an absence of history. This is one of the challenges to archaeological research in future years.



FIGURE 8 *Historic inscription. Felipe Pabón, a regular visitor to Mona and the island's caves in the late nineteenth century.*

Back Underground

In the mid-nineteenth to early twentieth centuries the center of action moved back to the island's subterranean realms. In 1856 phosphorous rich reserves in the caves of Mona were officially recognized when a Spanish expedition to survey Mona apprehended two American ships extracting guano, heedless of the Spanish claim and initiating an influx of geologists, engineers, and entrepreneurs. A second mission to Mona in 1858 generated an interesting and variously reproduced map of the island, detailing sixteen guano-bearing caves, coastal toponyms, and an empty interior (Fernandez Paredes & Bryant y Galiano 1858).¹⁰ The mining activities were most intense between 1878–1927 with concessions granted to English, Canadian, German, and Puerto Rican companies (AHN 1856–1896). For example, in 1881 Canadian geologist John G. Miller based his guano processing plant, workshops, storerooms, a drying plant, housing for workers, and his own accommodation at Playa Pajaro on the south coast. These works processed one hundred tons a day with one hundred

¹⁰ We are indebted to Walter Cardona Bonet for bringing the map to our attention, a later 1879 version of which was reproduced in Dávila 2003, map 3.

workers from the Dominican Republic, Puerto Rico, and the Lesser Antilles (Brusi y Font 1884; Frank 1998b; Kaye 1959). In the first phase of mining, caves in the south and east were exploited, with mining expanding to the north and west after 1890. Employing at its height between three and four hundred laborers, in at least forty-four separate caves (Kuhfal 1892; but estimates extend this to the majority of coastal caves, Briggs 1974), this industrial period saw the blasting of portions of the reef to allow access for shipping, construction of roads, the structural alteration of cave interiors and construction of rail tracks, and enlargement of the cave entrances with explosives. In contrast to this periodically frenetic activity in the coastal caves, visitors to the island invariably remarked upon the general inaccessibility of the interior due to impenetrable vegetation and lack of water (Brusi y Font 1884; Hübener 1898).

Although the official 1887 census of Mona and Monito lists four inhabitants, in the early 1900s several families cultivated the coastal soils with maize, peppers, melons, beans, onions, batatas, peanuts, tobacco, cotton, cane, and papayas. In 1919 the island was declared part of National Forest of Puerto Rico, before being colonized in 1937 by young men from the Civilian Conservation Corps (CCC), part of Franklin Delano Roosevelt's New Deal plans for economic reform. Houses were constructed at Camp Cofresí, and plantations established and managed for timber in the coastal areas of Sardinera. This continued until some 170 individuals had to be evacuated after a German U-boat bombed the island in 1942. This was also the year Eugenia Rodríguez, a woman known as Doña Geña, who since 1910 had lived with her family in a cave (Cueva de Geña) providing food for the island's workers, also left. From 1900 until 1976 Mona was home to lighthouse families on the eastern side of the island, and in 1938, at the time of archaeologist Irving Rouse's visit, these were the only inhabitants (Cardona Bonet 1985; Rouse 1952).

Professional treasure hunters also left their marks on Mona in the nineteenth and twentieth centuries (Cardona Bonet 1985). Among those who made the most concerted efforts and impact were a man named Erickson who spent two years between 1922–24 digging for treasure near Los Ingleses, and W. Hancock Logan who in the 1930s used over two tons of high explosives and high pressure water cannons, boasting “Before leaving I had altered the landscape enough to make the correct location impossible to detect” creating a “man-made landslide” (cit. Cardona Bonet 1985:77).

After World War II Mona became a fishing and hunting reserve before being handed to the United States Airforce for bombing exercises targeting Monito, as was the fate of other of Puerto Rico's small islands such as Culebra off the east coast. The airstrip near Sardinera and a jail were built during this period. From the 1960s Mona and Monito were returned to the jurisdiction of Puerto

Rico as a National Park and scientific research station. It is now a strategic location in an international war on narcotics and people trafficking. In the 1970s an estimated 2500 visitors per year arrived on Mona, including tourists, hunters, students, and scientists (Wadsworth 1973), in 2013 this was estimated at 3000.¹¹

The Heart of the Caribbean

It is within this context that the current research project, *El Corazón del Caribe*, was established in 2013. This is a collaborative project investigating the archaeology of an archipelagic region spanning the Dominican Republic and Puerto Rico. Research addresses first, ancient creolizations in the Caribbean from a material perspective, from initial island colonization to the early colonial period; and second, how the study of past human ecodynamics can provide lessons for current Caribbean populations facing changing rainfall patterns and rising sea levels.¹²

Archaeological fieldwork on Mona in May 2013 and June 2014 focused on the documentation of the material legacy of indigenous activities in sites both underground and above ground (Figure 9). However, it is the subterranean realm which was the focus of this first-phase fieldwork. Of the forty to fifty caves, rock shelters, and sinkholes visited by the archaeological team during 2013 and 2014, most contained evidence for past human activity from pre-Columbian to late historic times (Samson et al. 2015). Of these, over twenty caves were interpreted as being of indigenous significance. Future fieldwork will continue the survey of the subterranean spaces on both Mona and Monito to understand the relationship between these two contrasting settings, and the full extent of indigenous activities. Knowledge of human cave use is being considerably aided by systematic speleological survey and the production of detailed cave maps to address how the cultural uses of Mona's caves correlate with cave spaces (Kambesis 2011; Lace 2012). An archaeological sampling program has been implemented which will provide evidence to address questions of character and temporality of activities, investigating the time-space system-

11 José Rivera, DRNA official, personal communication, May 2013.

12 Co-operation between the McDonald Institute for Archaeological Research University of Cambridge, the British Museum, the Department of Natural Resources Puerto Rico, the Institute of Puerto Rican Culture, the Center of Advanced Studies of Puerto Rico and the Caribbean, and the Museo del Hombre Dominicano.



FIGURE 9 *Cave survey field school 2014. Laser scanning cave interior.*

atics of cave use, as well as to reconstruct the climate and human-climate interactions in the past.

Preliminary observations reveal evidence for cave use and indigenous mark-making across thousands of square meters of tunnels, ceilings, and walls, around the entire circumference of the island, bringing the current total of caves with indigenous archaeology surveyed by ourselves and others to around twenty-five. The majority of the mark-making attributed an indigenous authorship consists of finger and tool incised designs in the corrosion deposits of the caves. The cave corrosion residues were not only unique in terms of the possibilities they offered as transformable surfaces and a communicative medium, but also as mineral resources which were widely extracted and used by the indigenous inhabitants, probably as part of bodily practices associated with sources of water. Areas of designs often merge into areas of systematic extraction of the cave wall crusts, and in many areas finger-fluting, the application of wet pigments, and charcoal drawings, form complex overlapping palimpsests. So far, fieldwork has documented expressive and extractive practices in a variety of media (Samson et al. 2013; 2015), with motifs congruent with the ceramic range on the island, as well establishing connections much further afield across the

archipelago (Figure 10). Analyses of these design sequences and interrelationships can potentially provide a critical counterpoint to Caribbean chronologies constructed on ceramic typology.

Mark-making was not something restricted to indigenous populations which we can partition as rock art, a discrete, “premodern” form of ritual behavior. The study of mark-making is integral to a narration of material histories of both precolonial and colonial landscapes (Hauser & Hicks 2007; La Rosa Corzo 2007). Throughout all periods people made use of the cave walls for expressive and communicative purposes. Mark-making is motivated activity which goes beyond mining-related numbering systems to register guano extraction, or recent casual graffiti. Mark-making was extremely varied in terms of its form, meaning, and spatiality, ranging from often elaborate personal inscriptions etched into purposefully created soot patches, names and dates, ship graffiti from different periods, pirate symbols, and drawings (see Figures 7, 8, 11). It is not the intention of this paper to pre-empt the results of the ongoing studies; however, we wish to place the preliminary results of the project within the context of the themes highlighted at the start, and within past research on Mona.

Patterns in Island Histories

Dominant themes in island histories have to a certain extent grown out of environmental approaches to cultural landscapes such as island biogeography. Challenges to these approaches with respect to human history, such as the treatment of islands as bounded entities or treating culture as a natural system, have been discussed before (Boomert & Bright 2007; Broodbank 2000; Hofman & Bright 2010; Terrell 2008). Nevertheless, with regard to Mona, what seem to be structural patterns in the human experience of the island (related to the uniqueness of the island’s resources, the vulnerability of its human populations and ecologies, its demographic and cultural peculiarities, non-neutrality and seascape connectivity), are reiterated throughout various periods, albeit with different emphases. How can we explain the similarities yet account for the differences? We propose seeing Mona as a series of historically distinct and emergent cultural landscapes, structured by the particularities of the physical environment. This does not imply that we see history as a progression of replacements, but as diverse material and ideational reconfigurations of places and contexts, open to historical investigation (Barrett 1999; Ingold 1993; 2000). Properties such as size, the affordances of the underground and maritime realms, and location within archipelagic and Atlantic routes fade in and



FIGURE 10 *Indigenous finger and tool incised designs in the corrosion residues of the cave walls*

out of relevance within relational networks. To a great extent, this is a question of scale, and how these landscapes are configured and connected changes over time (Robb & Pauketat 2012). For example, zooming out, it appears that the caves of Mona have been a consistently salient feature for humans throughout time. Whereas zooming in, the diverse articulations of this relationship come into focus. Let us take two moments in which cave-human relationships are meaningful. We can see that at intervals in different pre-Columbian periods, caves drew people from across the archipelago into group and individual practices focused on the dark, remote, and watery zones. Extensive mark-making and extraction in the dark zones indicates engagement with the physical substances and psychosensorial properties of the caves. These practices created connections across generations, between people, ancestors, and nonhuman entities, which would have been comprehended by people thousands of kilometers across the archipelago, on both sides of the Mona Passage and perhaps as far as mainland South America and Mesoamerica. Contrast this with a brief fifty years in the nineteenth century, when hierarchically organized gangs of workers and overseers of different nationalities from surrounding islands and different continents were involved in hazardous labor, which had impacts on industrial processes, military technology, and markets in Europe and the Americas (Figure 11).

Similarly, in terms of demographics, small islands often support populations with unusual age and sex distributions, such as exiles or religious or economic specialists. For example, this is expressed in cosmological terms in the Caribbean by the Amazons, or “women-without-men” (Anderson 2006; Bright 2011; Oliver 2000). From at least the seventeenth century historical documents indicate Mona supported a series of exceptional communities, principally in terms of a gender bias. Effectively, Mona has been an island without women or children for the last four hundred years. There have been exceptions, such as the female consorts of pirates, Cimarron families in the eighteenth and nineteenth centuries, lighthouse families, and the entrepreneurial Doña Geña and her sons in the twentieth century, and this picture is certainly appropriate for archaeological interrogation. However, by and large, colonial administrators, crews, mariners and privateers, fishermen, hunters, miners, CCC workers, DRNA personnel, and law and drug enforcement have been overwhelmingly young adult and adult men, creating a long history of homosocial *communitas* on the island. This series of historically male social groups was inevitably vulnerable and transitory (another characteristic of small island populations), as can be seen by the persecution and destruction of Mona inhabitants and villages by privateers throughout the seventeenth and eighteenth centuries, or the downing of tools and abandonment of Mona by mine workers and managers directly



FIGURE 11 *Guano mining era drawings on the cave walls showing a perspective view of rails to transport guano carts out of the cave. The drawing is incised into a deliberately created patch of soot to form a canvas.*

after the death of mine director Miller. This provides a contrast with the four hundred year occupation of Sardinera village site, and the two thousand year activity sequence at Cueva de los Caracoles by indigenous communities. One could object that this is a question of resolution, and until we have more fine-grained data on the archaeological chronology to compare with historic time, we cannot know how stable or mobile these communities were. However, to this we can add indigenous exploitation of the full range of Mona landscapes-seascapes from offshore, to coasts, to caves, to the center of the *meseta* as seen in the ball courts, contrasting with the peripheral and spatially circumscribed use of the island in historic times. These long sequences, continuity of practices, and holistic use of the island may be an indication of more demographically balanced populations in pre-Columbian times, whether permanent or not.

And lastly, it is generally agreed that a dynamic interlocutive relationship between physical and social factors account for island isolation and connectivity (Broodbank 2000; Rivera Collazo 2011; Robb 2001; Terrell 2008), implying that the shifting and jagged borders of islands need to be addressed at every stage in the historical landscape. Today, Mona has an equivocal reputation, on the one hand a cherished and pristine utopia in the consciousness of many Puerto Ricans, and on the other a dangerous dystopia where the harsh envi-

ronment challenges survival and hundreds of migrants per year risk their lives to gamble on a US visa. This, coupled with the fact that visitor numbers are capped by the DRNA and there is no timetabled transport, lends Mona an ambivalent and remote character. This is a contemporary discourse, in which the physical environment is co-opted into the political and cultural narrative of isolation. However, reaching back into Mona's deep past, the island was hardly remote, drawing some of the Caribbean's early colonizers from 3000 BC. These were communities with strong regional, interisland connections as can be seen in similarities in material culture repertoires discussed above. Moreover, the prodigious and diverse mark-making in the caves shows subterranean practices and symbolic systems drew upon diverse connections within a Caribbean-wide network which were discursively important to Antillean identity. In late pre-Columbian times Mona's ball courts indicate shared ritual and social practices encompassing eastern Hispaniola, Puerto Rico, and the Virgin Islands. The circulation of social valuables, and regular traffic across the Mona Passage, suggest deep family genealogies spanning the sea gap (Alegria 1974; Oliver 2009). Here we get a sense of how Mona's boundaries were differently configured and connected through time, and how remoteness and connectivity are historically produced, and play on the affordances of the physical and geographical setting.

This brief biopic of Mona has reviewed the long-term history of the island's overseas, visiting and more permanent human populations. It provides a baseline overview of how historical landscapes have emerged, transformed, and dissolved over time. It is clear from this research that their spatial and material extent is neither static nor predetermined, but dynamic and historically contingent. The island plays a crucial role both in pre-Columbian and historical periods and it is ironic that its volatile and varied history since the sixteenth century has led to such little being known of the island's past. By combining archival, historical, and archaeological lines of enquiry this paper has hopefully demonstrated how Mona participated in the cultural vibrancy and connectedness of Caribbean and global networks. Future research will capitalize on the material evidence still preserved on the island to further study these connections and the role Mona Island has played as an agent of dynamic change in the history of the region.

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